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Catalogue of *Notomastus* M. Sars, 1851 (Annelida, Capitellidae) and the description of a new species from the Gulf of California

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Abstract

Capitellids are burrowing, earthworm-like polychaetes. The taxonomy within the group presents significant difficulties, due in part to their relative simplicity. In this study, a catalogue of the capitellid genus *Notomastus* M. Sars, 1851, is presented and a new species is described from the Southern Gulf of California: *Notomastus mazatlanensis* **sp. nov.** The catalogue provides original names and synonymies for 43 species; type locality and location of type materials; records and remarks on systematics and distribution. Type material of 35 species were examined, 31 from which were photographed to illustrate the catalogue. *Notomastus mazatlanensis* **sp. nov.** is established based on the presence of finger-like branchiae emerging from the epithelium near to the notopodia. Branchiae are composed by 3–4 filaments, and the first chaetiger is uniramous. A taxonomic key for species distributed in the Gulf of California is presented. [Species name is register in ZooBank under urn: lsid: zoobank.org: pub:CC8A9E5A-7810-4272-A23C-DCB054E5B4EB]

Key words: Capitellids, checklist, Gulf of California

Introduction

Capitellids are burrowing, earthworm-like polychaetes. They are often the dominant components of benthic infaunal communities, especially in sediments that are organically enriched. Because of their accessibility and importance in sedimentary environments, capitellids have been the subject of numerous ecological studies (Blake & Ruff 2007). However, the taxonomy within the group presents significant difficulties. This may in part be due their relative simplicity. Their body is a simple cylindrical shape resembling that of many Clitellata (Rouse 2001). Capitellidae is currently composed of 43 genera and about 200 species after Magalhães and Bailey-Brock (2017) and Silva and Amaral (2019). In the present study the genus *Notomastus* M. Sars, 1851, is reviewed.

Notomastus was described from Bergen (Norway) based on the following attributes: "Thorax with 12 segments including achaetous peristomium and 11 chaetigers with capillaries, abdomen only with hooded hooks, conical body without tentacles, lateral eyes, with papillae. Branchiae absent" (M. Sars 1851). Over time, the generic diagnosis has been modified by several authors such as Eisig (1887), Hartman (1947), Ewing (1982) and Green (2002). The most recent ammendation of *Notomastus* was provided by García-Garza and de León-González (2015) to include the following features: thorax with 12 segments including an achaetous peristomium and 11 chaetigers with capillary chaetae; first thoracic chaetiger biramous with noto- and neurochaetae; last thoracic chaetiger may have capillary chaetae, hooded hooks, or a mixture of both, capillary and hooded hooks; abdominal chaetigers with hooded hooks; and branchiae may be present or absent. Still, some species considered as members of *Notomastus* do not fit at all with the current definition of the genus. For example, Saint-Joseph (1906) and Hartmann-Schröder (1979), described *Notomastus exsertilis* Saint-Joseph,1906 and *N. hedlandica* Hartmann-Schröder, 1979 respectively. The former, *N. exsertilis*, has 10 thoracic chaetigers and the first two abdominal segments present

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capillary chaetae, whereas *N. hedlandica* has capillary chaetae in the first abdominal segment. Thus, the erection of taxa and its inclusion in *Notomastus* has been based on character combinations, rather than any phylogenetic relationships.

Notomastus includes 43 valid species worldwide, eight from which have been described from the Gulf of California (Sea of Cortez): *N. precocis* Hartman, 1960; *N. abyssalis* Fauchald, 1972; *N. cinctus* Fauchald, 1972; *N. sonorae* Kudenov, 1975; *N. angelicae* Hernández-Alcántara & Solís-Weiss, 1998; *N. landini* García-Garza & de León-González, 2015; *N. lobulatus* García-Garza & de León-González, 2015; and *N. fauchaldi* García-Garza & de León-González, 2015 (Fig. 1). This study offer an illustrated and commented catalogue of *Notomastus*, mostly based on the revision of type specimens from several museums; the description of a new species from México and a taxonomic key for nine species distributed in the Gulf of California (Sea of Cortez).

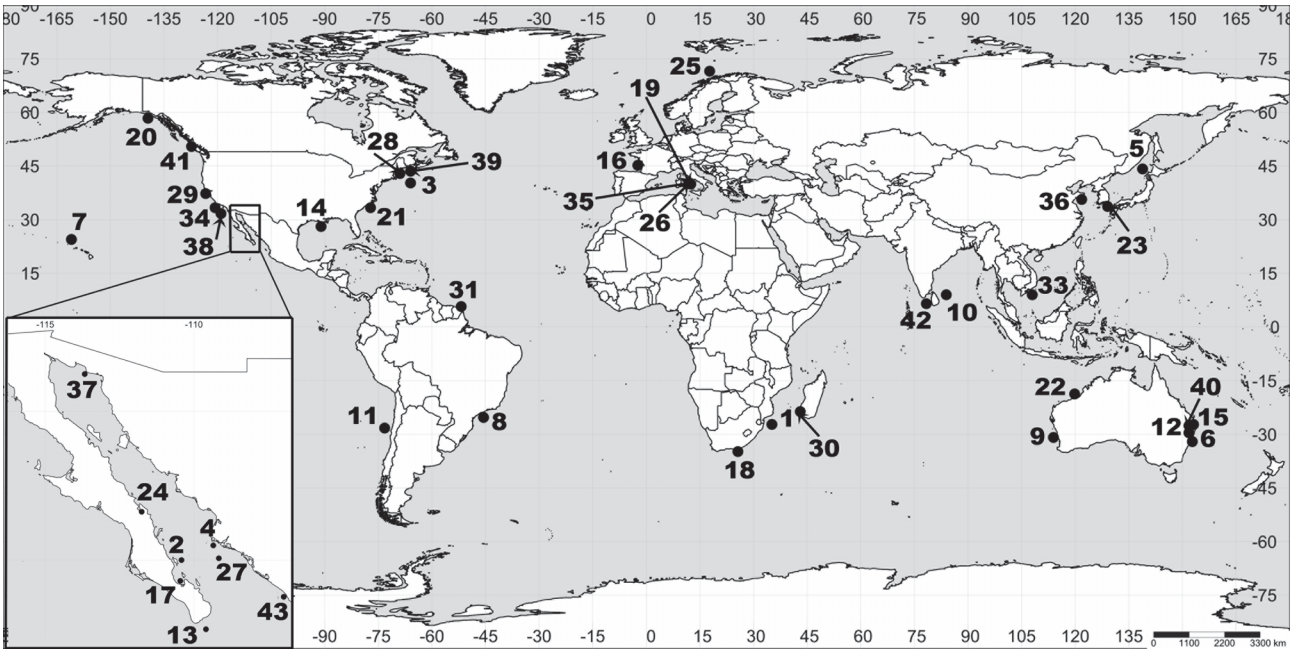

FIGURE 1. Distribution map of type localities of *Notomastus* species from the world. 1) *Notomastus aberans*, 2) *N. abyssalis*, 3) *N. agassizii*, 4) *N. angelicae*, 5) *N. annenkovae*, 6) *N. annulus*, 7) *N. anoculatus*, 8) *N. brasiliensis*, 9) *N. broomensis*, 10) *N. ceylonicus*, 11) *N. chilensis*, 12) *N. chrysosetus*, 13) *N. cinctus*, 14) *N. daueri*, 15) *N. estuarius*, 16) *N. exsertilis*, 17) *N. fauchaldi*, 18) *N. fauvelii*, 19) *N. formianus*, 20) *N. giganteus*, 21) *N. hemipodus*, 22) *N. hedlandica*, 23) *N. koreanus*, 24) *N. landini*, 25) *N. latericeus*, 26) *N. lineatus*, 27) *N. lobulatus*, 28) *N. luridus*, 29) *N. magnus*, 30) *N. mossambicus*, 31) *N. ouanaryensis*, 32) *N. parvus*, 33) *N. polyodon*, 34) *N. precocis*, 35) *N. profundus*, 36) *N. sinosus*, 37) *N. sonorae*, 38) *N. tenuis*, 39) *N. teres*, 40) *N. torquatus*, 41) *N. variegatus*, 42) *N. zeylanicus*, 43) *N. mazatlanensis* **sp. nov.**

Material and methods

Type and non-type material of 31 species of *Notomastus* were examined. In the catalogue these species are marked with an asterisk. Type material of five species were located based on literature, but not examined in the present study (*Notomastus koreanus* Jeong, Soh, Wi & Suh, 2018; *N. latericeus* M. Sars, 1851; *N. luridus* (Verrill, 1873); *N. profundus* (Eisig, 1887) and *N. sinuosus* Grube, 1877). Type material of *N. annenkovae* Zachs, 1933, *N. brasiliensis* Grube, 1867, *N. formianus* Eisig, 1887, *N. mossambicus* (Thomassin, 1970), *N. ouanryensis* (Gravier, 1901) and *N. zeylanicus* Willey, 1905 were not found. The following abbreviations correspond to depository institutions:

AM: Australian Museum, Sydney, Australia.
BMNH: The Natural History Museum, London, UK.
CAS-IZ: California Academy of Sciences-Invertebrate Zoology, San Francisco, USA.
LACM-AHF: Natural History Museum of Los Angeles County, Los Angeles, USA.

MABIK: Marine Biodiversity Institute of Korea.
MNHN: Muséum National d'Histoire Naturelle, Paris, France.
MPW: Museum of Natural History of the Wroclaw University, Poland.
NHMO: Natural History Museum, Oslo, Norway.
UANL: Universidad Autónoma de Nuevo León, México.
USNM: National Museum of Natural History, Smithsonian Institution, Washington DC, USA.
YPMNH: Yale Peabody Museum of Natural History, New Haven, USA.
ZMB: Zoologisches Museums Berlin, Germany.
ZMH: Zoologisches Institut und Museum der Universität Hamburg, Germany.
ZMUC: Zoological Museum, University Copenhagen, Copenhagen, Denmark.

The species in the catalogue are given in alphabetic order. The nomenclatural information includes the original name, author, year of publication, pages, plates and figures. Locations of type material and catalogue numbers are included. Records of each species are provided. Data for the type locality as complete as available in the original descriptions are also included. In some cases, remarks about the taxonomic status and photographs of type material were also given.

The new species here described was collected with a Petite Ponnar dredge on mud of Marina Mazatlán (Southern Gulf of California, Sinaloa, México), at 6 m. Specimens were fixed in 96% ethanol. Methyl green staining (MGS) was used to determine specific patterns of glandular areas, using the technique described in Warren *et al*. (1994). Photographs were taken with a stereomicroscope Olympus SZ61 equipped with a digital camera Olympus C-7070. Editing of photos was performed using Adobe Photoshop CS6. Type material of the new species are deposited in the Colección Poliquetológica de la Universidad Autónoma de Nuevo León (UANL) NL-INV-0002-05-09.

The taxonomic key to species of *Notomastus* from the Sea of Cortez provided by García-Garza & de León-González (2015) erroneously included *N. magnus* Hartman, 1947, that was originally described from Tomales Bay, California, USA. The taxonomic key presented here is modified from the former to exclude *N. magnus*, to include a new species and to use feasible and distinctive characters among species.

Taxonomic account

FAMILY Capitellidae Grube, 1862

GENUS *Notomastus* M. Sars, 1851

Type species: *Notomastus latericeus* M. Sars, 1851

Notomastus M. Sars, 1851: 119.—Eisig 1887: 11, 807.—Fauvel 1927: 141.—Hartman 1947: 411.—Day 1967: 597.—Fauchald 1977: 34.—Ewing 1982: 232; 1984: 14–18.—Blake 2000: 80.—Green 2002: 295.—Magalhães & Bailey-Brock 2012: 35.—García-Garza & de León-González 2015: 176.
Arenia Quatrefages, 1865: 249.
Sandanis Kinberg, 1865: 343.
Notomastus (*Clistomastus*) Eisig, 1887: 811.
Notomastus (*Tremomastus*) Eisig, 1887: 814.
Eisigella Gravier, 1901: 402.
? *Rashgua* Wesenberg-Lund 1949: 336.
? *Paraleiocapitella* Thomassin 1970: 86, fig. 9a–h.

1. *Notomastus aberans* Day, 1957
(Fig. 2a)

Notomastus aberans Day, 1957: 105, fig. 7a–b; 1961: 519; 1962: 649; 1967: 599, fig. 28.1m–q.—Harmelin 1968: 254, figs 1–5; 1969: 313.—Thomassin 1970: 82.—Capaccioni-Azzati 1988: 52, fig. 3a–b.—Simboura & Nicolaidou 2001: 109.—

Çinar 2005: 150.—Çinar 2009: 2311.—García-Garza & de León-González 2011: 37.—El Haddad *et al.* 2013: 103.—Capaccioni-Azzati & El Haddad 2015: 308, fig. 126a–e.

Type material: *Holotype (BMNH-AN 1961.16. 75-78).

Type locality: Indian Ocean, South Africa, Kosi Estuary, Sta. 63.

Records: South Africa (Day 1961, 1967), Indian Ocean (Day 1962), Mediterranean Sea, Aegean Sea and Gulf of Lion (Harmelin 1968, 1969; Simboura & Nicolaidou 2001), Adriatic, Tyrrhenian and Ligurian Seas (Gravina & Somaschini 1990), Turkey (Çinar 2005, 2009).

2. *Notomastus abyssalis* Fauchald, 1972

(Fig. 2b)

Notomastus abyssalis Fauchald, 1972: 248, fig. 51d–g.—García-Garza & de León-González 2011: 38; 2015: 177.

Type material: *Holotype (LACM-AHF POLY 1012).

Type locality: Eastern Pacific, México Baja California Sur, Punta Colorado, San José Island, Sta. 11788, 25°21'00"N, 110°05'00"W, November 24, 1967, 375 to 481 m, in silts with fine sand.

Records: Cabo Falso and Tres Marias Islands, Gulf of California (Fauchald 1972).

3. *Notomastus agassizii* McIntosh, 1885

(Fig. 2c)

Notomastus agassizii McIntosh, 1885: 389, pl. 46, fig. 3, pl. 24a, fig.15.—Eisig 1887: 868.—Roule 1896: 457.—El Haddad *et al.* 2013: 103.—Capaccioni-Azzati & El Haddad 2015: 323–324, fig. 136.

Type material: *Syntype (BMNH-AN01 1885.12.1.282), *Syntype (BMNH-AN01 1885.12.1.281).

Type locality: Western Atlantic, USA, off the coast New York, Sta. 47, 41°14'N, 65°45'W, May 7, 1873, dredged. Sea bottom, blue mud, 42°C, 2,450.59 m, HMS Challenger (1872–76).

Records: Atlantic Ocean (Roule 1896).

4. *Notomastus angelicae* Hernández-Alcántara & Solís-Weiss, 1998

(Fig. 2d)

Notomastus angelicae Hernández-Alcántara & Solís-Weiss, 1998: 713, fig. 1a–f, figs 2–3.—García-Garza & de León-González 2011: 39; 2015: 178.

Type material: *Holotype (USNM 180697), *Paratypes (5) (USNM 180698), *Paratypes (5) (LACM-AHF-POLY-1902).

Type locality: Eastern Pacific, Mexico, Gulf of California, Sinaloa, West Río Fuerte, 25°39'54"N, 109°28'36"W, March 1985, silt with fine sand, 35.19‰ salinity, 16.8°C, 5.4 ml/O_2 dissolved, 3.6% organic matter, 28.6 m.

Records: Only known from the type locality.

5. *Notomastus annenkovae* Zachs, 1933

Notomastus (*Clistomastus*) *annenkovae* Zachs, 1933: 131.

Type material: Not found.

Type locality: North Japan Sea.

Records: Only known from the type locality.

Remarks: Original description by Zachs (1933) is very brief with few details about the morphology, and illustrations were not included. It is desirable to locate the type material or to review topotypes in order to redescribe the species properly.

6. *Notomastus annulus* Hutchings & Murray, 1984

(Fig. 2e)

Notomastus annulus Hutchings & Murray, 1984: 81, fig. 23–1.

Type material: *Holotype (AM-18618), *Paratypes (BMNH PO 011983.1746), (USNM 81470), (AHF POL Y 1412), (AM-W18619), (AM-W18620).

Type locality: Tasman Sea (South Pacific Ocean), Australia, Hawkesbury River, New South Wales, Brooklyn Channel, Sta. D 2–3, dredging, -33.31°S, 151.14°E, December 18, 1979, fine mud and sandy mud with much shell, in shallow protected environments with salinities of 33–35‰, 7 m.

Records: Only known from the type locality.

7. *Notomastus anoculatus* Hartmann-Schröder, 1965

(Fig. 2f)

Notomastus (*Clistomastus*) *anoculatus* Hartmann-Schröder, 1965: 150, fig. 78.—Magalhães & Bailey-Brock 2012: 41–42.

Type material: *Holotype (ZMH-P15102).

Type locality: Eastern Pacific, USA, Hawaii Oahu, Kaneohe Bay, Korallensand, April 17, 1959, on coral sand, littoral.

Records: Only known from the type locality.

Remarks: Magalhães and Bailey-Brock (2012) mentioned that *N.* (*C.*) *anoculatus* presents similarities with *N. tenuis* Moore, 1909, particularly on the anterior region and thoracic segments. Based on the examination of type material of *N. anoculatus* (ZMH-P15102) and *N. tenuis* (CAS-019718), we realized that there are differences between both species as described below. *Notomastus anoculatus* has a prostomium with palpode, a tessellated epithelium from the first to the sixth chaetiger, abdominal notopodia very close to each other, and neuropodial lobes expanded to the dorsal part. *Notomastus tenuis* has a prostomium without palpode, the epithelium is smooth along the body, abdominal notopodia are widely separated and located dorso-laterally, and without neuropodial lobes. Therefore, we consider the validity of *N. anoculatus*.

8. *Notomastus brasiliensis* Grube, 1867

Notomastus brasiliensis Grube, 1867: 27, pl. 3, fig. 3.—Eisig 1887: 866.

Type material: Not found.

Type locality: Western Atlantic, Brasil, Rio de Janeiro, Brazilian Exclusive Economic Zone.

Records: Only known from the type locality.

9. *Notomastus broomensis* Hartmann-Schröder, 1979

(Fig. 2g)

Notomastus (*Clistomastus*) *broomensis* Hartmann-Schröder, 1979: 141: 326–330, pl. 1, fig. 6.

Type material: *Holotype (ZMH P-15492), *Paratype (ZMH P-15493), *Paratypes (3) (AM–W: 16–79).

Type locality: Indian Ocean, Australia, Willie Creek, wide tidal inlet, surrounded by mangroves, Broome Western Australia, –17°45'15. 8''S, 122°120'8.6''E.

Records: Only known from the type locality.

Remarks: *Notomastus broomensis* and *N. hemipodus* Hartman, 1945, from North Carolina are very similar morphologically. Both species have the first chaetiger uniramous; tessellated epithelium is present from the first to chaetiger 6; notopodio of posterior thoracic segments located dorsally; abdominal neuropodial lobes, expanded towards dorsum; and methyl green staining pattern is the same (abdominal chaetigers stained with moderate green dorsally and ventral region with a pair of longitudinal bands running to the end of body). As a consequence, it is necessary to make a detailed revision of both species to clarify their taxonomic status.

10. *Notomastus ceylonicus* Pillai, 1961

(Fig. 2h)

Notomastus ceylonicus Pillai, 1961: 28, fig. 9g–h.—García-Garza & de León-González 2015: 183, fig. 3g–i.

Type material: *Holotype (BMNH 1960.3.13.23).

Type locality: Indian Ocean, Sri Lanka, Tambalagam Lake, brackish water, 11.0–19.0 ppt, 1.8–7.3 m, in fine black mud in oyster beds.

Records: Only known from the type locality.

11. *Notomastus chilensis* Hartmann-Schröder, 1965

(Fig. 3a)

Notomastus chilensis Hartmann-Schröder, 1965: 237, figs 235–236.—Rozbaczylo *et al.* 2009: 105.—García-Garza & de León-González 2015: 183, fig. 3a–c.

Type material: *Paratype (ZMH P–15299).

Type locality: Western Pacific, Chile, Punta Tortuga, near Coquimbo, Sta. 1, –29.9567ºS, –71.3817ºW, February 21, 1960, mud and mixed sediments, 11.7°C, 82–220 m.

Records: Golfo Corcovado (Rozbaczylo *et al.* 2009).

12. *Notomastus chrysosetus* Hutchings & Murray, 1984

(Fig. 3b)

Notomastus chrysosetus Hutchings & Murray, 1984: 82, fig. 23, 2–3.

Type material: *Holotype (AM-W.18623), *Paratypes (AHF POLY 1411), (BMNH PO 011983. 1747), (USNM 81471).

Type locality: Tasman Sea (South Pacific Ocean), Australia, Hawkesbury River, Sta. D 4–1, –33.542°S, 151.244°E, November 20, 1980, mud to muddy, 27–35 ‰ salinity, 4–9 m.

Records: Only known from the type locality.

13. *Notomastus cinctus* Fauchald, 1972

(Fig. 3c)

Notomastus cinctus Fauchald, 1972: 250, pl. 50, figs d–h.—García-Garza & de León-González 2011: 40; 2015: 178.

Type material: *Holotype (LACM AHF POLY 1026).

Type locality: Eastern Pacific, Mexico, Baja California Sur, Cabo Falso, 22°34’00”N, 109°32’30”W, January 22, 1970, 1,200 to 1,450 m.

Records: Only known from the type locality.

14. *Notomastus daueri* Ewing, 1982

(Fig. 3d)

Notomastus daueri Ewing, 1982: 234, fig. 1a–g.

Type material: *Holotype (USNM-71442), *Paratype (USNM-71443).

Type locality: Western Atlantic, Gulf of Mexico, USA, Louisiana, 29.3 km SSW and Grand Isle, 28°56’12”N, 90°04’07”W, April 16, 1980, silty clay, 27.7 m.

Records: Only known from the type locality.

Remarks: Ewing (1982) described *N. daueri* having chaetiger 11 with hooded hooks in the neuropodia. He mentioned that this character distinguishes this species from *N. precocis* Hartman, 1960, *N. teres* Hartman, 1965 and *N. mossambicus* (Thomassin, 1970). We can infer that *N. daueri* was described based upon an immature specimen. Nevertheless, it is considered a valid species.

15. *Notomastus estuarius* Hutchings & Murray, 1984

(Fig. 3e)

Notomastus estuarius Hutchings & Murray, 1984: 83, fig. 24.1–3.

Type material: *Holotype (AM-W.18635), *Paratypes (BMNH-PO-011983.1748), (USNM-81472), (AHF POLY 1413).

Type locality: Tasman Sea (South Pacific Ocean), Australia, Avoca Lagoon, New South Wales, Sta. 10, −33.460°S, 151.427°, 4–20 m, sediments of muddy sand, fine to coarse, 0.0–29‰ salinity,

Records: Only known from the type locality.

16. *Notomastus exsertilis* Saint-Joseph, 1906

(Fig. 3f)

Notomastus exsertilis Saint-Joseph, 1906: 169, pl. 2, figs 44–47.—Fauvel 1927: 147, fig. 49i–p.—Amoureux 1972: 63–89.—Campoy 1982: 664.—Aguirrezabalaga 1984: 125.—Núñez *et al*. 2005: 310.—Capaccioni-Azzati & El Haddad 2015: 312, fig. 129a–f.

Type material: *Holotype/Syntype (MNHN-IA TYPE0 565), *Paratype (MNHN-IA 12675), *Syntypes (MNHN-IA TYPE 0548), (MNHN-IA TYPE 0549), (MNHN-IA TYPE 0550), (MNHN-IA TYPE 0551), (MNHN-IA TYPE 0552), (MNHN-IA TYPE 0569).

Type locality: Eastern Atlantic, France, Pays Basque, St. Jean de Luz, January 01, 1902.

Records: Eastern Atlantic from the French coast (Fauvel 1927), Galicia (Amoureux 1972) and Bay of Biscay (Campoy 1982; Aguirrezabalaga 1984) to Senegal and Cape Verde Islands (Núñez *et al*. 1999).

Remarks: According to García-Garza & de León-González (2015), *Notomastus exsertilis* presents different morphological characters from those described in the generic definition. This species presents 10 thoracic chaetigers with capillaries on noto- and neuropodia, and the first and second abdominal segments with capillaries. It is included in the catalogue until new studies, preferably based on a phylogenetic approach, support its exclusion and translocation into another genus, or its permanency within *Notomastus*.

17. *Notomastus fauchaldi* García-Garza & de León-González, 2015
(Fig. 3g)

Notomastus fauchaldi García-Garza & de León-González, 2015: 185, fig. 4a–g.

Type material: *Holotype (UANL-6537), *Paratype (1) (UANL-6538), *Paratype (1) (UANL-6539), *Paratypes (2) (LACM-AHF Poly 684).

Type locality: Eastern Pacific, Mexico, Baja California Sur, Ensenada de La Paz, La Paz bay, Sta. 12, 24°07'37.3''N, 110°25'10.6''W, June 1, 2006. This species was collected with sand nucleator in soft bottoms formed by silty sand, 24.5°C, 36.45‰, 4.302 ml/l O_2, 8.23 pH, 20 m.

Records: Only known from the type locality.

18. *Notomastus fauvelii* Day, 1955
(Fig. 4a)

Notomastus fauvelii Day, 1955: 422, fig. 3h–l; 1967: 597, fig. 28.1g–l.—García-Garza & de León-González 2015: 183, fig. 3d–f.

Notomastus giganteus (not Moore) Fauvel 1932: 194 *fide* Day 1967: 597.

Type material: *Holotype (BMNH 1961.16.73-74).

Type locality: South Atlantic Ocean, South Africa, Knysna Estuary, –34°18'57"S, 33°26' 44"E, sandy mud, intertidal.

Records: Only known from the type locality.

19. *Notomastus formianus* Eisig, 1887

Notomastus formianus Eisig, 1887: 820, fig. 1f.—Fauvel 1927: 145.—Harmelin 1968: 254, pl. 1, figs 6–10.—Capaccioni-Azzati 1988: 53, fig. 4a–b.—El Haddad *et al.* 2013: 103.—Capaccioni-Azzati & El Haddad 2015: 305–308, fig. 124a–c.

Type material: Not found.

Type locality: Tyrrhenian Sea, Italy, Gulf of Gaeta, 30 m, in muddy sand.

Records: Mediterranean Sea (Arvanitidis *et al.* 1999), Gulf of Naples (Eisig 1887), Marseille (Harmelin 1968), Gulf of Gaeta (Fauvel 1927), Greece (Arvanitidis *et al.* 1999; Simboura & Nicolaidou 2001), Iberian Peninsula and Alboran Sea, Els Alfacs Bay (Capaccioni-Azzati 1988).

20. *Notomastus giganteus* Moore, 1906
(Fig. 4b)

Notomastus giganteus Moore, 1906: 227, pl. 10, figs 24–25.—Fauvel 1932: 194.—Hartman 1947: 417. Not *Dasybranchus giganteus* Moore, 1909: 279, pl. 9, fig. 57.

Type material: *Holotype (USNM 5530).

Type locality: Eastern Pacific, USA, Gulf of Alaska Chatham Strait, Off freshwater Bay, 1903, Sta. 4264, Albatross, 516 to 536 m.

Records: Sri Lanka, Orissa coast (Fauvel 1932).

21. *Notomastus hemipodus* Hartman, 1945
(Fig. 4c)

Notomastus (*Clistomastus*) *hemipodus* Hartman, 1945: 38; 1947: 424, pl. 48, figs 1–5; 1951: 103, pl. 24, figs 1–3; 1969: 393, figs 1–5.
Notomastus hemipodus.—Day 1973: 100.—Ewing 1984: 14.28, figs 14.23, 14.24a–d.—Blake 2000: 81, fig. 4.13.—Dean 2001: 79, 2004: 136.—García-Garza & de León-González 2011: 40.—García-Garza *et al.* 2012: 2, figs 1a–d, 2a–d.
Notomastus (*Clistomastus*) *tenuis* Hartman, 1947: 420, pl. 47, figs 1–5 (*partim*).—Kudenov 1975: 220; 1980: 115.
Notomastus near hemipodus.—Green 2002: 297, fig. 17a–k.
Notomastus (*Clistomastus*) *tenuis.*—Fauchald 1972: 248.
Notomastus tenuis.—Hernández-Alcántara & Solís Weiss 1999: 27; 2003: 4.
Notomastus americanus Day, 1973: 100, figs13 l–n.—Hernández-Alcántara & Solís-Weiss 1993: 1034; 1998: 710–711; 1999: 27; 2003: 4.—García-Garza & de León-González 2011: 39.—García-Garza *et al*. 2012: 3.

Type material: *Holotype (LACM-AHF POLY 0414), *Paratype (1) (LACM-AHF POLY 1697), *Paratype (1) (LACM-AHF POLY 0415), (2) (LACM-AHF POLY 1701), (5) (LACM-AHF POLY 1709).

Type locality: Western Atlantic, USA, North Carolina, Beaufort, June 15–18, 1940, intertidal fine sands and mud.

Records: Beaufort, North Carolina (Hartman 1947); North Gulf of Mexico (Hartman 1951, Ewing 1984); California (Hartman 1969; Blake 2000); Pacific Ocean ,Costa Rica (Dean 2001, 2004); Andaman Sea (Green 2002); México, Baja California Sur, Sonora, Sinaloa (García-Garza & de León-González 2011); México, Baja California Sur, Sonora, Sinaloa, Campeche (García-Garza *et al.* 2012).

22. *Notomastus hedlandica* Hartman-Schröder, 1979
(Fig. 4d)

Notomastus (*Notomastus*) *hedlandica* Hartman-Schröder, 1979: 141, figs 324–325.

Type material: *Holotype (ZMH P-15490), *Paratypes (3) (ZMH P-15491), *Paratype (1) (WAM: 15–79).

Type locality: Indian Ocean, Australia, Port Hedland, 20°18’36’’S, 118°36’04’’E, September 28, 1975, mangrove in pretty pool, 25.6°C, 38.2‰ salinity.

Records: Only known from the type locality.

Remarks: *Notomastus hedlandica* presents capillaries in the first abdominal segment, a character that does not fit within *Notomastus*. Therefore, we consider this species with a conflicting taxonomic status.

23. *Notomastus koreanus* Jeong, Soh, Wi & Suh, 2018

Notomastus koreanus Jeong, Soh, Wi & Suh, 2018: 146–150, figs 2a–d, 3a–g.

Type material: Holotype (MABIKNA00066337) Paratypes: (MABIKNA00146048, MABIKNA00146049).

Type locality: China Sea, Korea, Busan, 35°6.33’N, 129°3.31’E, subtidal, sandy mud bottom, 16 m, October, 2011.

Records: Only known from the type locality.

24. *Notomastus landini* García-Garza & de León-González, 2015
(Fig. 4e)

Notomastus landini García-Garza & de León-González, 2015: 178, fig. 1a–g.

Type material: *Holotype (UANL6546), *Paratypes (4) UANL-7846), *Paratypes (2) (LACM-AHF Poly 6847).

Type locality: Eastern Pacific, Mexico, Baja California Sur, channel of the Los Cocos beach, Concepción Bay, 25°44’39. 1’’N, 111°53’55. 4’’W, June 25, 2006, 1 m, mangrove, sandy-muddy substrate, with fragments of shells.

Records: Only known from the type locality.

25. *Notomastus latericeus* M. Sars, 1851

Notomastus latericeus M. Sars, 1851: 199; 1856: 9–12, pl. 2, figs 8–17.—Eisig 1887: 861.—Saint-Joseph 1894: 117, pl. 6, figs 152–157.—Fauvel 1914: 250; 1926: 297; 1927: 143, fig. 49a–h; 1953: 364, fig. 189a–h.—Wesenberg-Lund 1949: 336.—Day 1961: 519; 1967: 599, fig. 28.2a–d.—Gallardo 1968: 120, pl. 53, fig. 13.—Thomassin 1970: 83, fig. 8a–c.—Kussakin 1975: 61.—Ewing 1984: 14.24, figs 14.17, 14.18.—Hernández-Alcántara & Solís-Weiss 1993: 1034; 1998: 711; 1999: 27.—Çinar 2005: 150.—Abd-Elnaby 2009: 87.—García-Garza & de León-González 2011: 41.—Capaccioni-Azzati & El Haddad 2015: 318–321, figs. 133, 134.
Capitella rubicunda Keferstein, 1862: 123, pl. 11, fig. 9.
Notomastus benedeni Claparède, 1864: 514, pl. 4, fig. 9.
Arenia cruenta Quatrefages, 1865: 250.—Eisig 1889: 865.
Arenia fragilis Quatrefages, 1865: 251.—Eisig 1889: 866.
Sandanis rubicundus Kinberg, 1865: 343.
?Notomastus sp. McIntosh, 1885: 390, pl. 42, fig. 2.
Notomastus (*Tremomastus*) *profundus* Eisig, 1887: 817, pl. 2, figs 5, 7, 10–11, 21, 27.
Notomastus (*Tremomastus*) *fertilis* Eisig, 1887: 819, pl. 2, figs 14–15, 29.
Notomastus rubicundus.—Eisig 1887: 863.
Notomastus fragilis.—Eisig 1887: 866.
Notomastus cruentus.—Eisig 1887: 865.
?Notomastus zeylanicus Willey, 1905: 287, pl. 5, figs 118–119.—Fauvel 1953: 364.
? Notomastus ceylanicus Pillai, 1961: 28, figs 9g–h, fig. 10a.—Thomassin 1970: 83.
Notomastus near latericeus.—Green 2002: 299, fig. 18a–i.—Magalhães & Bailey-Brock 2012: 35, figs 26a–b, 27a–f, 28a–b.

Type locality: Norwegian Sea, Norway.

Type material: Syntype (NHMO).

Records: Floro Komagfjord, Norway (Sars 1851); France (Fauvel 1927); Iberian Peninsula (Capaccioni-Azzati & El Haddad 2015); Gulf of Iran (Wesenberg-Lund 1949); South Africa, Mozambique, Madagascar (Day 1961 1967; Thomassin 1970); Viet Nam (Gallardo 1968); Northern Gulf of Mexico (Ewing 1984); Kurile islands (Kussakin 1975).

Remarks: *Notomastus latericeus* was considered a cosmopolitan species by Day (1967), Thomassin (1970) and Ewing (1984), but it is necessary to confirm these records.

26. *Notomastus lineatus* Claparède, 1870

Notomastus lineatus Claparède, 1870: 18–20, pl. 27, fig. 4.—Fauvel 1927: 145, fig. 51a–i.—Berkeley & Berkeley 1932: 674.—Ewing 1984: 14.24, 14.18a–e.—Bastida-Zavala 1993: 22.—Hernández-Alcántara & Solís-Weiss 1998: 712; 1999: 27 (*partim*).—Dean 2001: 80; 2004: 137.—Çinar 2005: 150.—García-Garza & de León-González 2011: 42.—Capaccioni-Azzati & El Haddad 2015: 314–318, fig. 130A–E.
Notomastus sarsii Claparède, 1864: 511, pl. 4, fig. 8, pl. 8, fig. 7.—Eisig 1887: 864.
Notomastus (*Clistomastus*) *lineatus*.—Eisig 1887: 811, pl. 1, fig. 1, pl. 2, figs 8.18, 22–26, pl. 13, figs 8–9, pl. 33, figs 1–3, pl. 34, figs 1–6, pl. 35, fig. 1.—Hartman 1947: 419, pl. 46, figs 1–2; 1969: 395, figs 1–5.
Notomastus near *lineatus*.—Green 2002: 301, fig. 19a–m.

Type material: Not found.

Type locality: Mediterranean Sea, Italy, Gulf of Naples.

Records: France (Fauvel 1927); Iberian Peninsula (Capaccioni-Azzati & El Haddad 2015); Canada (Berkeley & Berkeley 1932); California (Hartman 1947, 1969); Northern Gulf of Mexico (Ewing 1984); Pacific Ocean, Costa Rica (Dean 2001, 2004); Indian Ocean (Green 2002).

Remarks: *Notomastus lineatus* is considered a cosmopolitan species (Capaccioni-Azzati & El Haddad 2015), but the revision of all these records is necessary to confirm its wide distribution.

27. *Notomastus lobulatus* García-Garza & de León-González, 2015
(Fig. 4f)

Notomastus lobulatus García-Garza & de León-González, 2015: 181, fig. 2a–f.

Type material: *Holotype (UANL7847).

Type locality: Eastern Pacific, Mexico, Southern Gulf of California, in front Sinaloa coast, Talud IV, 24°56.3'N, 109°11.8'W, August 26, 2000, 1200–1274 m.

Records: Only known from the type locality.

28. *Notomastus luridus* Verrill, 1873

Notomastus (*Clistomastus*) *luridus* Verrill, 1873: 610.—Eisig 1887: 869.—Hartman 1942: 68–69; 1947: 422, pl. 49, figs 1–5.—Dean 1996: 71.

Type material: Syntypes (YPM IZ-000795AN); (YPM IZ-000794AN); (YPM IZ-001438AN); (YPM IZ-001439AN); (YPM IZ-001457AN); (YPM IZ-001462AN); (YPM IZ-043663AN); (YPM IZ-062309AN); (YPM IZ-063836AN); (YPM IZ-063838AN); (YPM IZ-066316AN); (YPM IZ-066708AN).

Type locality: Western Atlantic, USA, Connecticut, New Haven County, West Haven; Savin Rock, 1871, muddy sand, intertidal.

Records: Only known from the type locality.

29. *Notomastus magnus* Hartman, 1947

(Fig. 4g)

Notomastus magnus Hartman, 1947: 412, pl. 50, figs 1–6; 1961: 35; 1963: 63; 1969: 401, figs 1–6.—Reish 1963: 429.—Blake 1975: 226; 2000: 83, fig. 4.14.—García-Garza & de León-González 2011: 42.—García-Garza & de León-González 2015: 185, fig. 2g–i.
Dasybranchus giganteus.—Moore 1909: 279, *not* Moore 1906: 227.
Notomastus giganteus.—Berkeley & Berkeley 1941: 48, *not* Moore 1906: 227.

Type material: *Paratype (LACM-POLY 0413), *Paratype (LACM-POLY 2217), *Paratype (BMNH-AN 1958.3.1.31-32).

Type locality: Eastern Pacific, USA, California, Tomales Bay, intertidal, sea grass *Phyllospadix*, muddy sand.

Records: California (Moore 1909, as *Dasybranchus giganteus*; Berkeley and Berkeley 1941, as *Notomastus giganteus*; Hartman 1961, 1963, 1969; Blake 2000), Western coast of Baja California Sur and Northern Gulf of California, Sonora (García-Garza & de León-González 2011, 2015).

30. *Notomastus mossambicus* (Thomassin, 1970)

Paraleiocapitella mossambica Thomassin, 1970: 86, fig. 9 a–h.
Notomastus mossambicus.—Ewing 1982: 234.—Çinar 2005, figs 3a–d, 4a–f.

Type material: Not found.

Type locality: Indian Ocean, Tulear, SW Madagascar, northern Cyprus (Çinar 2005).

Records: Indian Ocean, Tulear, SW Madagascar, northern Cyprus (Çinar 2005).

Remarks: Ewing (1982) designated the genus *Paraleiocapitella* as a junior synonym of *Notomastus*, therefore, *P. mossambicus* was relocated in *Notomastus*. We consider that this species was described with an immature organism, since it presents the eleventh chaetiger with hooded hooks on the neuropodia. It is also corroborated by Çinar (2005), who reported *N. mossambicus* from northern Cyprus with 11 chaetigers armed with capillaries on both, notopodia and neuropodia.

31. *Notomastus ouanaryensis* (Gravier, 1901)

Eisigella ouanaryensis Gravier, 1901: 402.

Notomastus (*Eisigella*) *ouanaryensis.*—Hartman 1959: 444.
Notomastus ouanaryensis.—Gillet 1986: 808.—Glasby *et al.* 2009: 5.

Type material: Not found.

Type locality: Western Atlantic, South America, French Guiana.

Records: Only known from the type locality.

32. *Notomastus parvus* Berkeley, 1929

(Fig. 4h)

Notomastus pallidor parvus Berkeley, 1929: 312.
Notomastus parvus.—Hartman 1959: 445.

Type material: *Paralectoype (USNM 32679), *Lectotype (USNM 32680).

Type locality: Eastern Pacific, Canada, British Columbia, Vancouver Island, Departure Bay, Newcastle, May 21, 1923.

Records: Only known from the type locality.

33. *Notomastus polyodon* Gallardo, 1968

(Fig. 5a)

Notomastus polyodon Gallardo, 1968: 120, pl. 56, figs 1–4.—Green 2002: 303, fig. 20.—García-Garza & de León-González 2011: 43.

Type material: *Holotype (LACM-AHF POLY 0301).

Type locality: China Seas, South Viet Nam, Nha Trang Bay, Sta. 26411, soft bottoms, intertidal, 12°15'37''N,109°12'44.''E, March 16, 1960, 10 m.

Records: South Viet Nam (Gallardo 1968); Andaman Sea (Green 2002); Baja California (Gulf of California), Sonora (García-Garza & de León-González 2011).

Remarks: Records from the Mexican coasts were compared with the holotype.

34. *Notomastus precocis* Hartman, 1960

(Fig. 5b)

Notomastus precocis Hartman, 1960: 139; 1969: 403.—Fauchald 1972: 251.—García-Garza & de León-González 2011: 44; 2015: 187.

Type material: *Holotype (LACM-AHF POLY 0416).

Type locality: Eastern Pacific, USA, Santa Catalina Gulf, Sta. 2848, 1400-2000, in sandy silt.

Records: Mexico, Baja California, Jalisco, Nayarit in the slope zone (Fauchald 1972).

Remarks: *Notomastus precocis* was described with the last three thoracic chaetigers with capillaries and hooded hooks on neuropodia, so we can infer that the holotype was described in a juvenile stage.

35. *Notomastus profundus* (Eisig, 1887)

Notomastus (*Tremomastus*) *profundus* Eisig, 1887: 817, pl. 2, figs 5–7, 10, 11, 27, pl. 31, figs 12–15.—Lo Bianco 1893: 14.
Capitella major Claparède, 1870: 16, pl. 17, fig. 3 *fide* Fauvel 1926: 51: 296–301.
Notomastus profundus Eisig, 1887: 50, fig. 50a–k.—Fauvel 1927: 144, fig. 50a–k.—Çinar 2005: 150.—Abd-Elnaby 2009: 87.—Capaccioni-Azzati & El Haddad 2015: 321–323, figs. 103d, 135.

Type material: Paratype (BMNH-AN 1928.4.26.643).

Type locality: Mediterranean Sea, Italy, Gulf of Naples, 15–20 m, fine mud.

Records: Mediterranean Sea and Eastern Atlantic (Capaccioni-Azzati & El Haddad 2015).

36. *Notomastus sinuosus* Grube, 1877

Notomastus sinosus Grube, 1877: 54.—Eisig 1887: 867.

Type material: Holotype (MPW N° 323), Syntype (ZMB Verm Q4591).

Type locality: China Seas, China, Chefóo or Zhifu.

Records: Only known from the type locality.

37. *Notomastus sonorae* Kudenov, 1975

(Fig. 5c)

Notomastus (*Notomastus*) *sonorae* Kudenov, 1975: 221, figs. 35–39.
Notomastus sonorae.—García-Garza & de León-González 2011: 44; 2015: 179, figs n–k.

Type material: *Holotype (LACM-AHF POLY 1113).

Type locality: Eastern Pacific, Mexico, Sonora, La Cholla Bay, Puerto Peñasco, 31º20'30''N, 113º39'W, intertidal, sediments with fine sand.

Records: Only known from the type locality.

38. *Notomastus tenuis* Moore, 1909

(Fig. 5d)

Notomastus tenuis Moore, 1909: 277, pl. 9, fig. 55.—Berkeley & Berkeley 1952: 103.—Fauchald 1972: 248.—Blake 2000: 85, fig. 4.15.—Dean 2001: 81; 2004: 147.—Hernández-Alcántara & Solís-Weiss 1998: 712; 1999: 27; 2003: 4.—García-Garza & de León-González 2011: 44.—Magalhães & Bailey-Brock 2012: 39, fig. 28c–e, 29a–d, 30a–f.—García-Garza *et al.* 2012: 7, figs 1e–h, 2e–f.
Notomastus angulatus Chamberlin, 1919: 16–17.—Berkeley 1929: 312.
Eisigella tenuis Berkeley & Berkeley, 1942: 198.
Notomastus (*Clistomastus*) *angulatus* Hartman-Schröder, 1965: 150, fig. 78.
Notomastus (*Clistomastus*) *tenuis.*—Hartman 1947: 420, pl. 47, figs 1–5; 1969: 397, figs 1–5.—Reish 1968: 89.—Kudenov 1975: 220.—Calderón-Aguilera & Jorajuria-Corbo 1986: 55, fig. 8a–c.
? *Notomastus tenuis.*—Ewing 1984: 14–26.
Notomastus americanus Day, 1973: 100, figs 13 l–n.—Hernández-Alcántara & Solís-Weiss 1993: 1034; 1998: 710–711; 1999: 27; 2003: 4.

Type material: *Holotype (CAS-019718).

Type locality: Eastern Pacific, USA, California, San Diego, intertidal.

Records: USA, California (Hartman 1947; Berkeley & Berkeley 1952; Blake 2000); Costa Rica (Dean 2001, 2004); Hawaiian Islands (Magalhães & Bailey-Brock 2012).

39. *Notomastus teres* Hartman, 1965

(Fig. 5e)

Notomastus teres Hartman, 1965: 194.

Type material: *Holotype (LACM AHF 0418), *Paratype (LACM AHF 0418), *Paratype (USNM 57105).

Type locality: Western Atlantic, USA, Mid Atlantis states, off New England, 39°16'30''N, 72°18.0''W, 500–4667 m, April 18, 1960.

Records: Only known from the type locality.

Remarks: Hartman (1965) described *N. teres* with hooded hooks on neuropodia of chaetigers 10 and 11, mentioning that this character makes it different from other species. We consider that this character is not important to separate one species from another, since during its development it is modified. However, the species is considered valid.

40. *Notomastus torquatus* Hutchings & Rainer, 1979

(Fig. 5f)

Notomastus (*Clistomastus*) *torquatus* Hutchings & Rainer, 1979: 779, fig. 8a–b.
Notomastus (*Clistomastus*) *hemipodus*.—Hutchings 1974: 186.—Hutchings & Recher 1974: 105 *not* Hartman 1947.

Type material: *Holotype (AM W10849), *Paratype (BMNH PO 01 1977.107), *Paratype (USNM 55201).

Type locality: Pacific Ocean, Australia, New South Wales, Pittwater, Careel Bay, 33º37'1. 2"S, 151º19'20"E, April 16, 1972, *Posidonia* bed.

Records: Only known from the type locality.

Remarks: Hutchings and Rainer (1979) commented that *N*. (*C*.) *torquatus* and *N*. (*C*.) *hemipodus* were similar, but emphasized their differences: *N*. *torquatus* presents prostomium with palpode and multiple eyes, as well as fused notopodial lobes. *N. hemipodus* lacks a palpode, has only a pair of eyes and bilobed notopodia. García-Garza *et al.* (2012) redescribed *N. hemipodus*, mentioning the presence of palpode on the prostomium, and fused notopodial lobes on the first segments and on the posterior ones bilobed.

41. *Notomastus variegatus* Berkeley & Berkeley, 1950

(Fig. 5g)

Notomastus variegatus Berkeley & Berkeley, 1950: 59; 1952:103.
Notomastus pallidior.—Berkeley & Berkeley 1942: 198, *not* Chamberlin, 1918.

Type material: *Lectotype (USMN 32677), *Paralectotype (USMN 32678).

Type locality: Eastern Pacific, Canada, British Columbia, Vancouver Island, 13.7 m.

Records: Only known from the type locality.

42. *Notomastus zeylanicus* Willey, 1905

Notomastus zeylanicus Willey, 1905: 287, pl. 5, figs 118–119.
Capitellethus zeylanicus.—Augener 1926: 172, 1927: 218.

Type material: Not found.

Type locality: Indian Ocean, India, Sri Lanka, East Cheval Paar, 14 m.

Records: Only known from the type locality.

Remarks: Pillai (1961) mentioned that *N. zeylanicus* is possibly a species of *Heteromastides*, since it was described with a single, fragmented organism. Wiley (1905) described *N. zeylanicus* with both, prostomium and peristomium being achaetous; 11 segments with capillaries in both rami, and hooded hooks starting at chaetiger 12, features of *Notomastus*. The type material needs to be located and redescribed.

43. *Notomastus mazatlanensis* sp. nov.

(Fig. 6a–e)

Material examined. Holotype (UANL-8128) Eastern Pacific, Mexico, Southern Gulf of California, Sinaloa, Mazatlán, Marina Mazatlán, 23°16'2.1"N, 106°27'14.5"W, September 5, 2018, 6 m, mud. (4) Paratypes (UANL-

8129), October 11, 2015, Colls. MEG-G, MAT-H and JAL-G. **Comparative material examined.** *Notomastus hemipodus* Hartman, 1945: Holotype (LACM-AHF Poly 414), Paratypes (4) (LACM-AHF Poly 415), (1) (LACM-AHF Poly 2667), (2) (LACM-AHF Poly 2668); (6) (LACM-AHF Poly 2669). *Notomastus fauvelii* Day, 1955: Holotype (BMNH 1961.16.73-74).

Diagnosis. Prostomium conical with palpode and eyespots. Thorax with an achaetous peristomium and 11 chaetigers with capillary chaetae. First chaetiger uniramous. Abdominal segments with hooded hooks in both rami. Branchiae present dorsally. Pygidium without appendages.

Description. Holotype incomplete, fragmented in 4 parts, anterior fragment with 50 segments, 22.2 mm long, 0.89 mm wide, and 38 segments, 14.8 mm long, 0.86 mm wide; posterior fragments with 43 segments, 15.5 mm long, 1.2 mm wide, and 68 segments, 38.0 mm long, 1.4 mm wide. Paratypes incomplete, 50–89 segments, 22–66 mm long, 1.4 mm wide. Color in ethanol reddish-white. Prostomium conical with palpode. Eyespots covered by peristomium , small, forming discrete groups on both sides of prostomium. Proboscis everted, globular, finely papillated. Peristomium and chaetigers 1-3 with tessellated epithelium; following thoracic segments smooth (Fig. 6a).

Thorax with 11 chaetigers armed with bi-limbated capillary chaetae. First chaetiger uniramous. Thoracic chaetigers biannulated. Notopodia inserted laterally in first fifth thoracic chaetigers, then notopodia inserted dorsally from chaetiger 6 to posterior thorax (Fig. 6a). Lateral organs occurring from first thoracic chaetiger (Fig. 6a) towards abdominal segments, between noto- and neuropodia, but closer to notopodia; abdominal lateral organs as small protuberances, closer to notopodial lobes (Fig. 6b). Genital pores located at chaetigers 8–11, under neuropodial lobes.

Transition between thorax and abdomen marked abruptly by size of segments. Abdominal segments with smooth epithelium. Abdominal neuropodia with hooded hooks throughout. Abdominal notopodia widely separated dorsally, without lobe, with hooded hooks on both rami (six hooks per fascicle) (Fig. 6b). Neuropodial lobes ventrally separated, with 28–30 hooded hooks per fascicle (Fig. 6e). Digitiform, eversible branchia emerging from body wall on medial abdominal segments and so on towards posterior end; branchiae aligned below the notopodia bearing 3–4 branchial filaments initially (Fig. 6c) and 28–30 in posterior segments (Fig. 6d). Hooded hooks similar in shape on noto- and neuropodia; long anterior shaft, angulated node, evident constriction, posterior shaft longer than anterior one, developed shoulder, covered with numerous apical filaments; with a main fang and four rows of small teeth, basal row with three teeth, intermediary row with 4–5 teeth and distal, one with an indeterminate number (Fig. 6f). Pygidium without appendages.

Methyl green staining pattern. Prostomium, peristomium and chaetigers 1 and 2 stained light green; chaetigers 3 and 4 with moderate green, and chaetigers 5–11 dark green (Fig. 6a). Anterior abdominal segments stained dark green dorsally (Fig. 6b). Posterior abdominal segments stained dark green, with a dotted band around each segment (Fig. 6c, e).

Remarks. *Notomastus mazatlanensis* **sp. nov.**, is similar to *N. fauvelii* and *N. hemipodus* by having finger-like branchiae emerging from the epithelium near the notopodia. However, *N. mazatlanensis* **sp. nov.** differs from *N. fauvelii* by presenting the first chaetiger uniramous and the digitiform branchiae grouped in 3–4 filaments in anterior abdominal segments, while *N. fauvelii* has the first chaetiger biramous (Fig. 4a) and the branchiae are composed by 15 filaments in anterior abdominal segments (Fig. 6h). Furthermore, glandular staining pattern is markedly different in *N. fauvelii*: peristomium, segments 6–9 and post-chaetal area of segment 11 stain moderate green; abdominal segments have two pre and post-chaetal longitudinal bands dark green running along, and each abdominal segment present narrow, transversal bands dark green (Fig. 4a).

Notomastus mazatlanensis **sp. nov.** and *N. hemipodus* present the first chaetiger uniramous, but both species differ in that *N. mazatlanensis* **sp. nov.** has 3–4 branchial filaments per notopodium, while *N. hemipodus* presents bilobed branchiae (Fig. 6g). In addition, the glandular staining pattern of *N. hemipodus* is very evident in the abdominal segments, presenting moderate green marks, and ventral region with a pair of longitudinal bands toward the end of the body.

Etymology. The specific name is related to the type locality where the new species was found: Mazatlán, in a marina located in the Southern Gulf of California, México (Fig. 1).

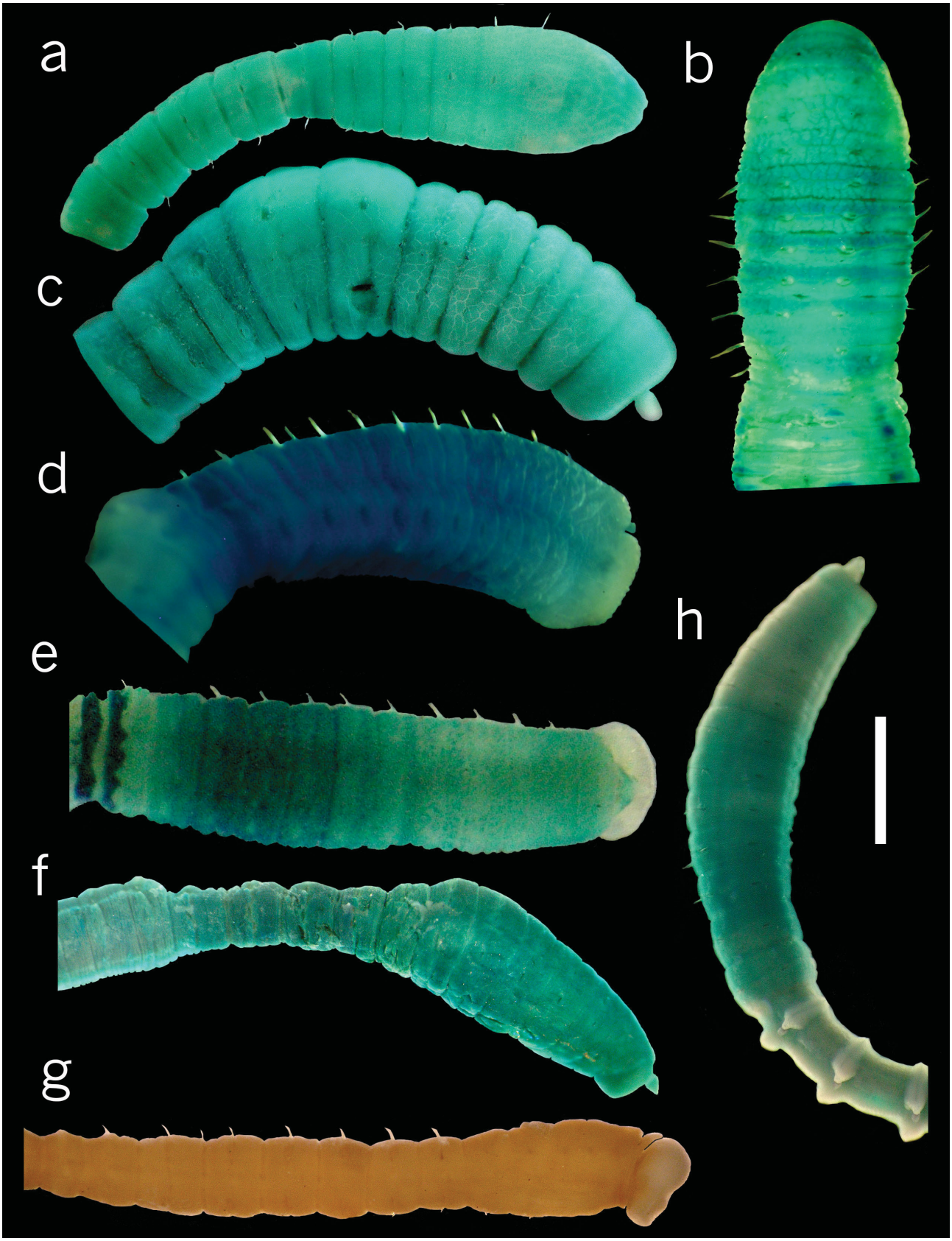

FIGURE 2. Species of *Notomastus*: a, *N. aberans* (holotype, anterior end, dorsolateral view, MGS); b, *N. abyssalis* (holotype, anterior end, dorsal view, MGS); c, *N. agassizii* (syntype, anterior end ,lateral view, MGS); d, *N. angelicae* (holotype, anterior end, lateral view, MGS); e, *N. annulus* (holotype, anterior end, dorsal view, MGS); f, *N. anoculatus* (holotype ,anterior end, lateral view, MGS); g, *N. broomensis* (holotype, anterior end, lateral view); h, *N. ceylonicus* (holotype, anterior end, dorsolateral view, MGS). Scale bar: a–h=1 mm.

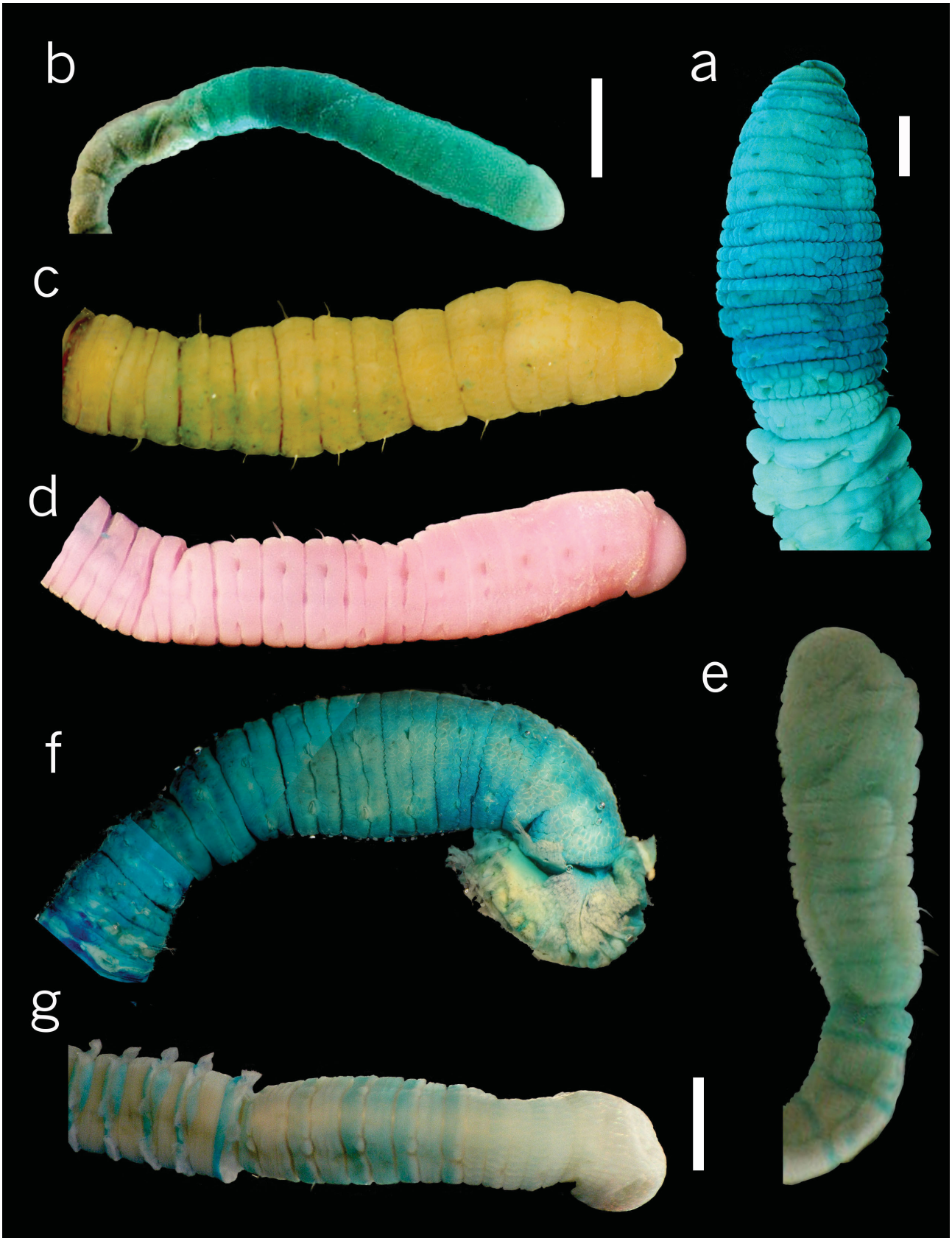

FIGURE 3. Species of *Notomastus*: a, *N. chilensis* (paratype, anterior end, dorsal view, MGS); b, *N. chrysosetus* (holotype, anterior end, dorsal view, MGS); c, *N. cinctus* (holotype, anterior end, dorsolateral view); d, *N. daueri* (holotype, anterior end, dorsolateral view); e, *N. estuarius* (holotype, anterior end, dorsal view, MGS); f, *N.exsertilis* (holotype/syntype, anterior end, lateral view, MGS); g, *N. fauchaldi* (holotype, anterior end, dorsal view, MGS). Scale bar: a–e=1 mm.

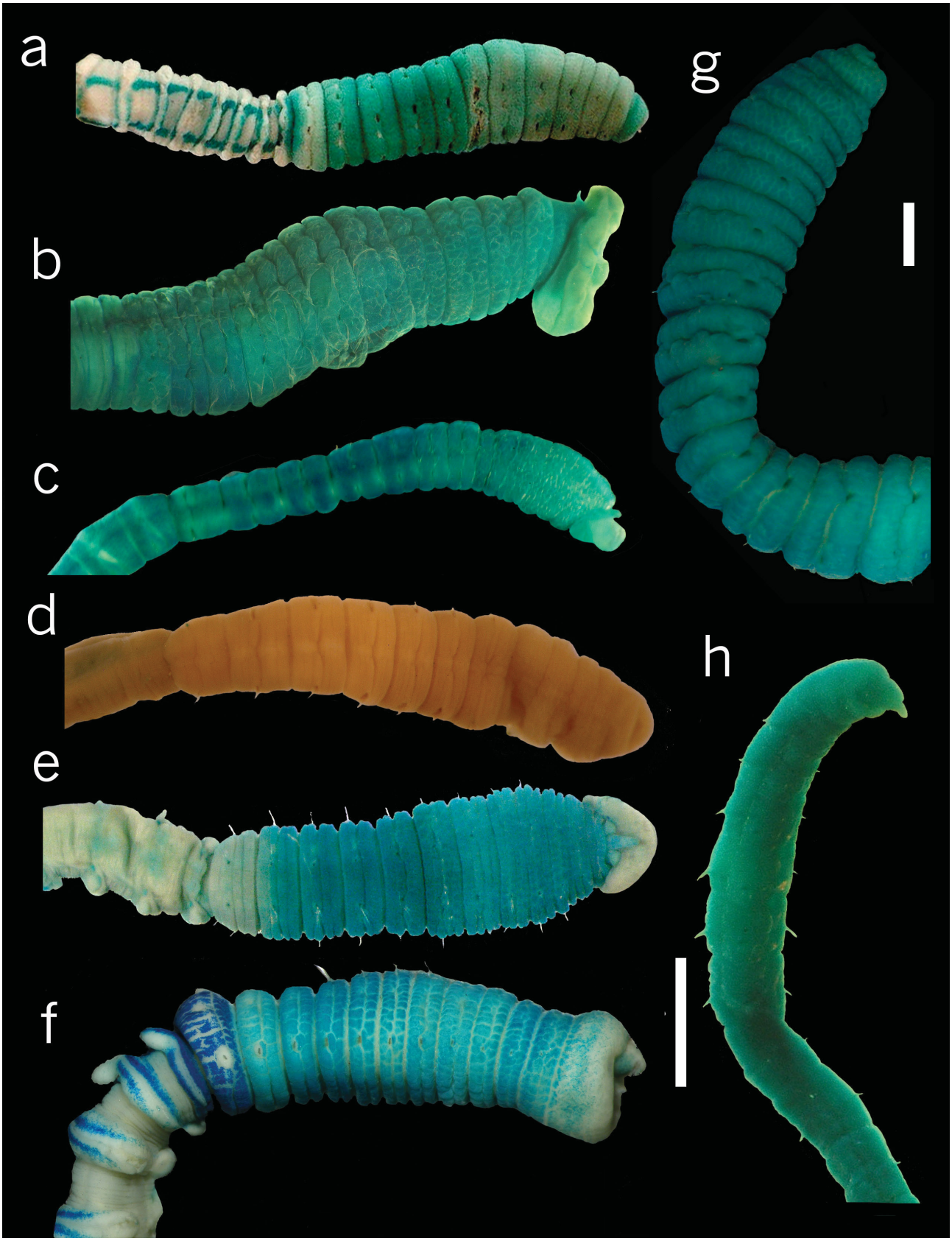

FIGURE 4. Species of *Notomastus*: a, *N. fauvelii* (holotype, anterior end, dorsolateral view, MGS); b, *N. giganteus* (holotype, anterior end, lateral view, MGS); c, *N. hemipodus* (holotype, anterior end, lateral view, MGS); d, *N. hedlandica* (holotype, anterior end, dorsal view); e, *N. landini* (holotype, anterior end, dorsal view, MGS); f, *N. lobulatus* (holotype, anterior end, lateral view, MGS); g, *N. magnus* (holotype, anterior end, dorsolateral view, MGS); h, *N. parvus* (paralectotype, anterior end, ventral view, MGS). Scale bar: a–h=1 mm.

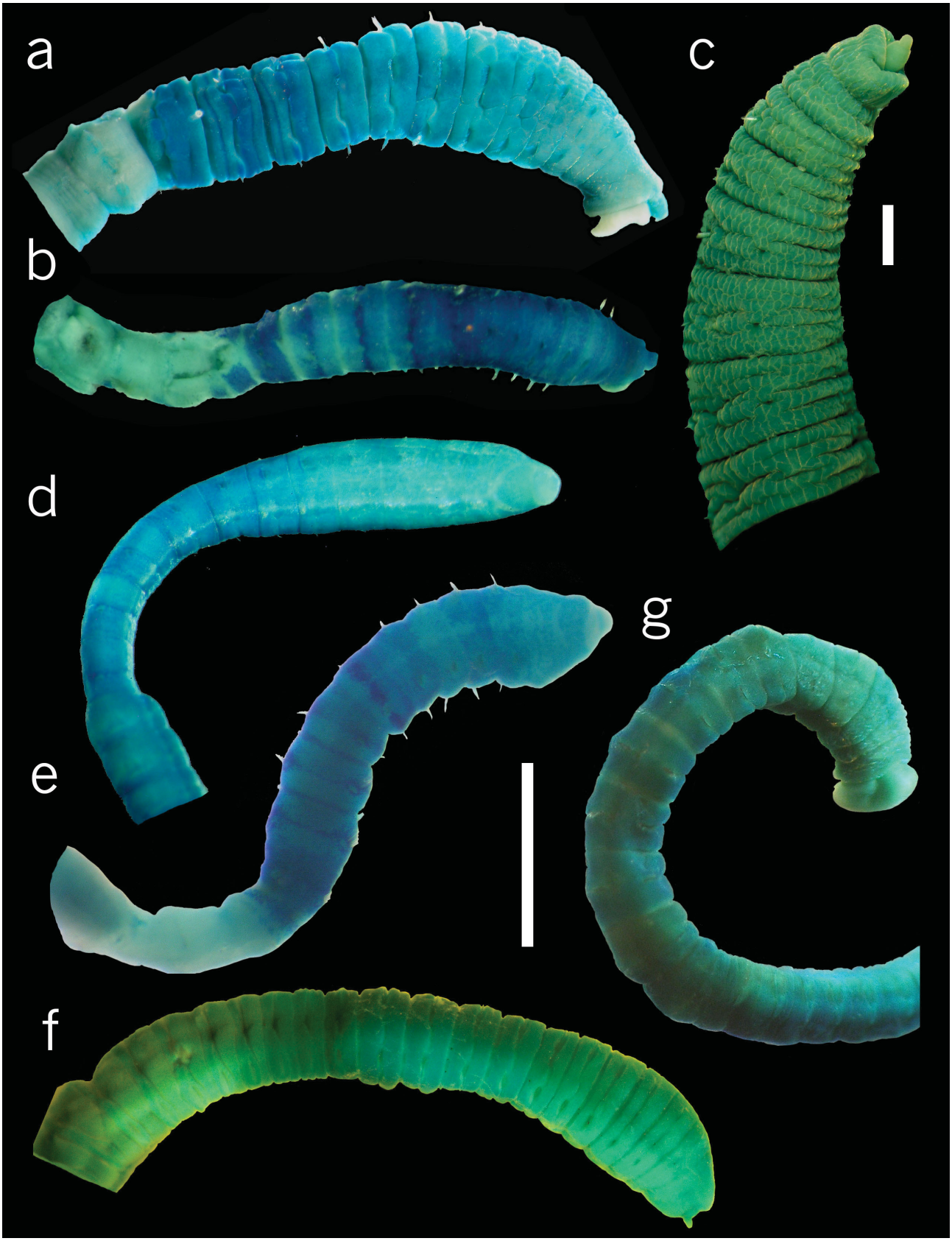

FIGURE 5. Species of *Notomastus*: a, *N. polyodon* (holotype, anterior end, lateral view, MGS); b, *N. precocis* (holotype, anterior end, dorsal view, MGS); c, *N. sonorae* (holotype, anterior end, lateral view, MGS); d, *N. tenuis* (holotype, anterior end, lateral view, MGS); e, *N. teres* (holotype, anterior end, dorsal view, MGS); f, *N. torquatus* (holotype, anterior end, lateral view. MGS); g, *N. variegatus* (lectotype, anterior end, dorsolateral view, MGS). Scale bar: a–g=1 mm.

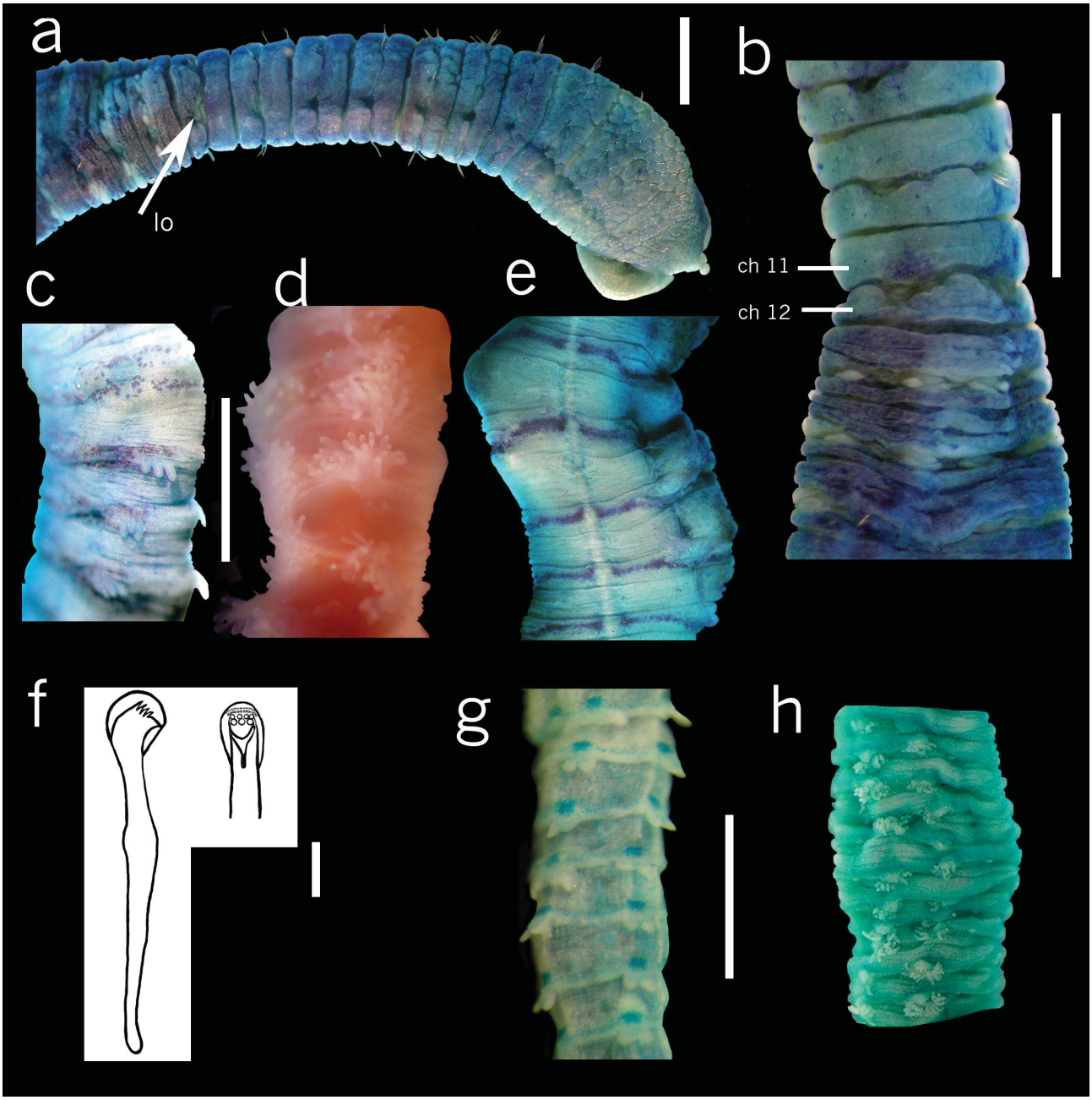

FIGURE 6. Species of *Notomastus*: a, *N. mazatlanensis* **sp. nov.** (holotype, anterior end, dorso-lateral view); b, transition between thorax and abdomen, dorsal view; c, median abdominal chaetiger, dorso-lateral view; d, posterior abdominal chaetigers showing branchiae, lateral view; e, median abdominal chaetigers, ventral view; f, notopodial hooded hook from chaetiger 50 and detail of the hooded hook anterior end; g, *N. hemipodus* chaetigers 102–105, dorsal view; h, *N. fauvelii* (holotype, chaetigers 19–28, dorsal view, MGS). Abbreviation: lo) lateral organ. Scale bars: a–e, g–h=1 mm, f=15 µm.

Key to species of *Notomastus* from the Gulf of California

1	First segment biramous	2
-	First segment uniramous; fused notopodia; digitiform, dorsal branchiae	*N. mazatlanensis* **sp. nov.**
2	Thoracic bundles of chaetae inserted laterally	3
-	Anterior thoracic bundles of chaetae inserted laterally, then gradually inserted towards dorsum on the last posterior segments	5
3	Abdominal notopodial lobes fused	*N. angelicae* Hernández-Alcántara & Solís-Weiss, 1998
-	Abdominal notopodial lobes separated	4
4	All thoracic segments tessellated	*N. sonorae* Kudenov, 1975
-	Some thoracic segments tessellated	*N. landini* García-Garza & de León-González, 2015

5 Abdominal notopodial lobes fused 6
- Abdominal notopodial lobes separated . . . . . *N. abyssalis* Fauchald, 1972
6 Abdominal notopodial lobes with digitiform endings; dorsal papillae dispersed in abdominal segments . . . . . *N. fauchaldi* García-Garza & de León-González, 2015
- Abdominal notopodial lobes without digitiform endings; dorsal papillae absent. 7
7 Abdominal neuropodial lobes robust, expanded towards dorsal side . . . .*N. lobulatus* García-Garza & de León-González, 2015
- Abdominal neuropodial lobes not expanded dorsally 8
8 Noto- and neuropodium forming a high ridge around abdominal segments. . . . . *N. cinctus* Fauchald, 1972
- Noto- and neuropodium without ridges in abdominal segments. . . . . *N. precocis* Hartman, 1960

Concluding remarks

This study provides a catalogue of *Notomastus* as a first step towards a better understanding of its diversity. The limited number of morphological features to differentiate species is often overlapped among species. Thus, it is desirable to determine ontogenetic variations from a systematic standpoint and the use of genetics and their application in the phylogeny of the genus.

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